Astronomy 350L
(Fall 2006)

The History and Philosophy of Astronomy

(Lecture 26: Epilogue)

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The University of Texas at Austin
Cosmic Calendar: Human History in Perspective
Every culture looks up to the heavens:

China

Mayan

Polynesia
History of Astronomy:
From Pre-history to the Modern Age

Every age gets the astronomy it deserves!
The Stone Age (~100,000 - 2,000 BC)
Dawn of Civilization

Babylon, Egypt: Technology, astrology, calendars

→ no science yet! → Greece (600 BC)
Antiquity (1,000 BC - 500 AD)

Raphael (~1510): School of Athens
Antiquity (1,000 BC - 500 AD)

Great Library of Alexandria

Eratosthenes (2nd BC)
- Earth is Sphere
- Measure size

Ptolemy (150 AD)
- Intricate model for planetary motion
- Geocentric system
Middle Ages (500 - 1492 AD)

Dante’s Paradise (The Empyrean)
Middle Ages/Islam (7th cent. - 1,600)

Preserve and develop classical heritage!
Renaissance (1,450 – 1,600 AD)

Copernicus
(1473-1543)

Copernican Revolution:  (De Revolutionibus, 1543)

Earth-centered → Sun-centered universe
The Baroque Period (1600 – 1750 AD)

• The Scientific Revolution!

(Melk Abbey, Lower Austria)
The Baroque Period (1600 – 1750 AD)

- Planets move in elliptical orbits around Sun

Kepler (1571-1630)
The Baroque Period (1600 – 1750 AD)

Galileo (1564-1642)

Telescopic Discoveries
The Baroque Period (1600 – 1750 AD)

Newton (1642-1727)

Law of Universal Gravity

\[ F = G \frac{M_1 M_2}{d^2} \]
The Enlightenment (1750 – 1830 AD)

Sir William Herschel
(1738-1822)

Discoverer of Uranus, 1781
The Victorian Age (1830 – 1900 AD)

(Crystal Palace, London, Great Exhibition of 1851)

Dynamic interplay between science and technology!
The Victorian Age (1830 – 1900 AD)

William Parsons
(1800 – 1867, 3rd Earl of Rosse)

Spiral Nebulae
The 20\textsuperscript{th} Century

(Picasso, Guernica 1937)

Towards our modern view of the universe!
The 20\textsuperscript{th} Century

Einstein, 1879 - 1955

General Theory of Relativity:

Gravity = curved spacetime
Q: Have we made progress?

How to define *progress*?

![Graph showing progress over time with key events: Antiquity, Dark Ages, Renaissance: Copernicus, Galileo: Use of Telescope.](image_url)
From Home to Immensity:

Journey through Space

An infinite universe, no center, no edge!
From the Big Bang to Eternity:
Journey through Cosmic Time

A universe of finite age, but with eternity ahead!
History of Astronomy:

The Story of Humanity

Auguste Rodin,
The Thinker (1880)

M. C. Escher,
Bond of Union (1956)